AMENDMENTS TO THE CLAIMS:

This listing of claims will replace all prior versions, and listings, of claims in the application.

LISTING OF CLAIMS

1. (Currently Amended) A reflective liquid crystal display device, comprising:

~~a liquid crystal layer sandwiched between~~ a first substrate having a light reflectibility; ~~and~~

a second substrate having a light transmissibility; ~~, the~~

a liquid crystal layer sandwiched between the first substrate and the second substrate, the liquid crystal layer being composed of twist-aligned nematic liquid crystal having a positive dielectric anisotropy; and

a circular polarizing unit that ~~means, including a single linear polarizer plate, for~~ selectively passes ~~passing~~ either right handed or left handed substantially circularly polarized light out of a plurality of wavelengths of natural light in the visible spectrum,

~~the reflective liquid crystal display device~~ wherein,

~~the first substrate, the liquid crystal layer, and the circular polarizing means are stacked in this order to form at least a part of the reflective liquid crystal display device,~~

the circular polarizing <u>unit</u> ~~means~~ is disposed ~~so~~ <u>such</u> that a major surface of the circular polarizing <u>unit</u> ~~means~~ is on a liquid crystal layer side, the <u>substantially</u> circularly polarized light exiting the circular polarizing <u>unit</u> ~~means~~ through the major surface when natural light enters the circular polarizing <u>unit</u> ~~means~~, <u>and</u>

~~the circular polarizing means selectively passes either right handed or left handed substantially circularly polarized light in the whole visible wavelength range from natural light,~~

<u>wherein, said incoming substantially circularly polarized light being linearly polarized at</u> ~~to perform the white display, in~~ a surface of ~~the~~ <u>said</u> first substrate ~~incoming light to the liquid crystal layer becomes linearly polarized light~~ in ~~arbitrary~~ <u>a plurality of</u> directions ~~in a visible wavelength range,~~ <u>respectively representative of said plurality of wave lengths of said natural light to thereby create a display.</u>

~~the liquid crystal in the liquid crystal layer has a birefringence difference, which, if multiplied by a thickness of the liquid crystal layer, produces a product of not less than 150nm and not more than 350nm, and~~

~~the liquid crystal layer has a twist angle in a range of 45° to 100°.~~

2. (Previously Presented) The reflective liquid crystal display device as set forth in claim 1, wherein

the circular polarizing means includes: a first optical retardation compensator plate having a retardation in a substrate normal direction set to not less than 100nm and not more than 180nm; a second optical retardation compensator plate having a retardation in a substrate normal direction set to not less than 200nm and not more than 360nm; and a linear polarizer plate, the first optical retardation compensator plate, the second optical retardation compensator plate, and the linear polarizer plate being stacked in this order when viewed from the liquid crystal layer, and

$|2x\theta2 - \theta1|$ has a value not less than 35° and not more than 55°, where $\theta1$ represents an angle formed by a slow axis of the first optical retardation compensator plate and either a transmission axis or an absorption axis of the linear polarizer plate, and $\theta2$ represents an angle formed by a slow axis of the second optical retardation compensator plate and either the transmission axis or the absorption axis of the linear polarizer plate.

3. (Previously Presented) The reflective liquid crystal display device as set forth in claim 2, wherein the twist angle of the liquid crystal layer is in a range from 60° to 100°,

the product of the birefringence difference of the liquid crystal in the liquid crystal layer and the thickness of the liquid crystal layer is not less than 250nm and not more than 330nm, and

either the transmission axis or the absorption axis of the linear polarizer plate forms an angle, θ3, of not less than 20° and not more than 70°, or not less than 110° and not more than 150° with an alignment direction of the liquid crystal molecules in a close proximity of the second substrate.

4. (Withdrawn – Previously Presented) The reflective liquid crystal display device as set forth in claim 1, being characterized in that

the first substrate having a light reflexibility includes a light reflective film, and

the light reflective film has smooth and continuously changing concavities and convexities, and is made of a conductive material.

5. (Withdrawn) The reflective liquid crystal display device as set forth in claim 4, being characterized in that

the smooth and continuously changing concavities and convexities of the light reflective film have a direction dependent property that varies according to a direction on a substrate plane.

6. (Currently Amended) The reflective liquid crystal display device as set forth in claim 1, ~~wherein~~ further comprising:

~~a single third~~ one of an optical retardation compensator unit ~~plate or~~ and a plurality of ~~the same is(are)~~ optical retardation compensator units provided

between the circular polarizing unit ~~means~~ and the liquid crystal layer to minimize influence from ~~cancel~~ a residual phase difference of the liquid crystal layer.

7. (Currently Amended) The reflective liquid crystal display device as set forth in claim 6, wherein

~~either the third optical retardation compensator plate or at least one of the third optical retardation compensator plates~~ said one of said optical retardation compensator unit and said plurality of optical retardation compensator units has an inclined optical axis, or a three-dimensionally aligned optical axis having therein a continuously varying inclined direction.

8. (Withdrawn) reflective liquid crystal display device as set forth in claim 1, being characterized in that

the first and second optical retardation compensator plates have such ratios of a refractive index anisotropy, n(450), with respect to light having a wavelength of 450nm, a refractive index anisotropy, n(650), with respect to light having a wavelength of 650nm, and a refractive index anisotropy, n(550), with respect to light having a wavelength of 550nm that satisfy

1 n(450)/ n(550) 1.06 and

0.95 n(650)/ n(550) 1 respectively.

9. (Withdrawn) The reflective liquid crystal display device as set forth in claim 8, being characterized in that

the first and second optical retardation compensator plates have such ratios of a refractive index anisotropy, n(450), with respect to light having a wavelength of 450nm, a refractive index anisotropy, n(650), with respect to light having a wavelength of 650nm, and a refractive index anisotropy, n(550), with respect to light having a wavelength of 550nm that satisfy

1 n(450)/ n(550) 1.007 and

0.987 n(650)/ n(550) 1 respectively.

10. (Withdrawn – Previously Presented) The reflective liquid crystal display device as set forth in claim 1, being characterized in that

the twist angle of the liquid crystal layer is in a range of not less than 65 and not more than 90 ,

the product of the birefringence difference of the liquid crystal in the liquid crystal layer and the thickness of the liquid crystal layer is not less than 250nm and not more than 300nm, and

either a transmission axis or an absorption axis of the linear polarizer plate forms an angle, 3, of not less than 110 and not more than 150 with an alignment direction of the liquid crystal molecules in a close proximity of the second substrate.

11. (Withdrawn – Previously Presented) The reflective liquid crystal display device as set forth in claim 1, characterized in that

either a transmission axis or an absorption axis of the linear polarizer plate forms an angle, 3, of not less than 110 and not more than 150 with an

alignment direction of the liquid crystal molecules in a close proximity of the second substrate, and

a viewing direction is set to a direction on a plane that is defined by a normal to a display surface and a direction 90 off the alignment direction of the liquid crystal molecules in a close proximity of the second substrate.

12. (Withdrawn – Previously Presented) The reflective liquid crystal display device as set forth in claim 1, being characterized in that

either a transmission axis or an absorption axis of the linear polarizer plate forms an angle, 3, of not less than 20 and not more than 70 with an alignment direction of the liquid crystal molecules in a close proximity of the second substrate, and

a viewing direction is set to a direction on a plane that is defined by a normal to a display surface and the alignment direction of the liquid crystal molecules in a close proximity of the second substrate.

13. (Withdrawn) The reflective liquid crystal display device as set forth in claim 5, being characterized in that

either a transmission axis or an absorption axis of the linear polarizer plate forms an angle, 3, of not less than 110 and not more than 150 with an alignment direction of the liquid crystal molecules in a close proximity of the second substrate,

a viewing direction is set to a direction on a plane that is defined by a normal to a display surface and a direction 90 off the alignment direction of the liquid crystal molecules in a close proximity of the second substrate, and

the viewing direction is set to be on a plane that is defined by the normal to the display surface and a direction on a substrate plane in which the concavities and convexities of the light reflective film have a shorter mean cycle than in other directions.

14. (Withdrawn) The reflective liquid crystal display device as set forth in claim 5, being characterized in that

either a transmission axis or an absorption axis of the linear polarizer plate forms an angle, 3, of not less than 20 and not more than 70 with an alignment direction of the liquid crystal molecules in a close proximity of the second substrate,

a viewing direction is set to a direction on a plane that is defined by a normal to a display surface and the alignment direction of the liquid crystal molecules in a close proximity of the second substrate, and

the viewing direction is set to be on a plane that is defined by the normal to the display surface and a direction on a substrate plane in which the concavities and convexities of the light reflective film have a shorter mean cycle than in other directions.

15. (Withdrawn – Previously Presented) The reflective liquid crystal display device as set forth in claim 1, being characterized in that

either a transmission axis or an absorption axis of the linear polarizer plate forms an angle, 3, of not less than 40 and not more than 60 with an alignment direction of the liquid crystal molecules in a close proximity of the second substrate, and

the liquid crystal molecules in a close proximity of the second substrate form an angle 4 with a direction on a plane that is defined by a viewing direction and a normal to a display surface, the angle 4 being set to not less than 0 and not more than 30 , or not less than 180 and not more than 210 .

16. (Withdrawn – Previously Presented) A reflective liquid crystal display device incorporating a touch panel arranged from the reflective liquid crystal display device,

the reflective liquid crystal display device including: a liquid crystal layer sandwiched between a first substrate having a light reflexibility and a second substrate having a light transmissibility, the liquid crystal layer being composed of twist-aligned nematic liquid crystal having a positive dielectric anisotropy; and circularly polarizing means, including a single linear polarizer plate, for selectively passing either right handed or left handed circularly polarized light out of natural light, wherein the first substrate, the liquid crystal layer, and the circularly polarizing means are stacked in this order to form at least a part of the reflective liquid crystal display device, the circularly polarizing means is disposed so that a major surface of the circularly polarizing means is on a liquid crystal layer side, the circularly polarized light exiting the circularly polarizing means through the major surface when natural light enters the circularly polarizing means, the liquid crystal in the liquid crystal layer has a birefringence difference, which, if multiplied by a thickness of the liquid crystal layer, produces a product of not less than 150nm and not more than 350nm, and the liquid crystal layer has a twist angle in a range of 45° to 100°,

the reflective liquid crystal display device being characterized in that

a planar pressure sensitive element for detecting an external pressure is sandwiched with a layer-shaped empty space between the circularly polarizing means and the second substrate.

17. (Withdrawn) A reflective liquid crystal display device comprising:

a liquid crystal layer sandwiched between a first substrate having a light reflexibility and a second substrate having a light transmissibility, the liquid crystal layer being composed of twist-aligned nematic liquid crystal having a positive dielectric anisotropy; and

circularly polarizing means, including a single linear polarizer plate, for selectively passing either right handed or left handed circularly polarized light out of natural light,

the reflective liquid crystal display device being characterized in that

the first substrate, the liquid crystal layer, and the circularly polarizing means are stacked in this order to form at least a part of the reflective liquid crystal display device,

the circularly polarizing means is disposed so that a major surface of the circularly polarizing means is on a liquid crystal layer side, the circularly polarized light exiting the circularly polarizing means through the major surface when natural light enters the circularly polarizing means,

the liquid crystal in the liquid crystal layer has a birefringence difference, which, if multiplied by a thickness of the liquid crystal layer, produces a product of not less than 85nm and not more than 315nm, and

the liquid crystal layer has a twist angle in a range of 0° to 100°.

18. (Withdrawn) The reflective liquid crystal display device as set forth in claim 17, being characterized in that

the circularly polarizing means includes: a first optical retardation compensator plate having a retardation in a substrate normal direction set to not less than 100nm and not more than 180nm; a second optical retardation compensator plate having a retardation in a substrate normal direction set to not less than 200nm and not more than 360nm; and a linear polarizer plate, the first optical retardation compensator plate, the second optical retardation compensator plate, and the linear polarizer plate being stacked in this order when viewed from the liquid crystal layer, and

$|2 \times \theta 2 - \theta 1|$ has a value not less than 35° and not more than 55° where $\theta 1$ represents an angle formed by a slow axis of the first optical retardation compensator plate and either a transmission axis or an absorption axis of the linear polarizer plate, and $\theta 2$ represents an angle formed by a slow axis of the second optical retardation compensator plate and either the transmission axis or the absorption axis of the linear polarizer plate.

19. (Withdrawn) The reflective liquid crystal display device as set forth in claim 18, being characterized in that

the twist angle of the liquid crystal layer is in a range from 60° to 100°,

the product of the birefringence difference of the liquid crystal in the liquid crystal layer and the thickness of the liquid crystal layer is not less than 250nm and not more than 330nm, and

either the transmission axis or the absorption axis of the linear polarizer plate forms an angle, $\theta 3$, of not less than 20° and not more than 70°, or not less than 110° and not more than 150° with an alignment direction of the liquid crystal molecules in a close proximity of the second substrate.

20. (Withdrawn) A reflective liquid crystal display device, comprising:

a liquid crystal layer sandwiched between a first substrate having a light reflexibility and a second substrate having a light transmissibility, the liquid crystal layer being composed of twist-aligned nematic liquid crystal having a positive dielectric anisotropy; and

circularly polarizing means, including a single linear polarizer plate, for selectively passing either right handed or left handed circularly polarized light out of natural light,

the reflective liquid crystal display device being characterized in that

the first substrate, the liquid crystal layer, and the circularly polarizing means are stacked in this order to form at least a part of the reflective liquid crystal display device,

the circularly polarizing means is disposed so that a major surface of the circularly polarizing means is on a liquid crystal layer side, the circularly polarized light exiting the circularly polarizing means through the major surface when natural light enters the circularly polarizing means,

the liquid crystal in the liquid crystal layer has a birefringence difference, which, if multiplied by a thickness of the liquid crystal layer, produces a product of not less than 90nm and not more than 350nm, and

the liquid crystal layer has a twist angle in a range of 0° to 100°.

21. (Withdrawn) The reflective liquid crystal display device as set forth in claim 20, being characterized in that

the circularly polarizing means includes: a first optical retardation compensator plate having a retardation in a substrate normal direction set to not less than 100nm and not more than 180nm; a second optical retardation compensator plate having a retardation in a substrate normal direction set to not less than 200nm and not more than 360nm; and a linear polarizer plate, the first optical retardation compensator plate, the second optical retardation compensator plate, and the linear polarizer plate being stacked in this order when viewed from the liquid crystal layer, and

$|2x\theta2 - \theta1|$ has a value not less than 35° and not more than 55°, where $\theta1$ represents an angle formed by a slow axis of the first optical retardation compensator plate and either a transmission axis or an absorption axis of the linear polarizer plate, and $\theta2$ represents an angle formed by a slow axis of the second optical retardation compensator plate and either the transmission axis or the absorption axis of the linear polarizer plate.

22. (Withdrawn) The reflective liquid crystal display device as set forth in claim 21, being characterized in that

the twist angle of the liquid crystal layer is in a range from 60° to 100°,

the product of the birefringence difference of the liquid crystal in the liquid crystal layer and the thickness of the liquid crystal layer is not less than 250nm and not more than 330nm, and

either the transmission axis or the absorption axis of the linear polarizer plate forms an angle, $\theta3$, of not less than 20° and not more than 70°, or not less than 110° and not more than 150° with an alignment direction of the liquid crystal molecules in a close proximity of the second substrate.

23. (New) The reflective liquid crystal display device as set forth in claim 1, wherein the liquid crystal layer has a birefringence difference, which, if multiplied by a thickness of the liquid crystal layer, produces a product of not less than 150 nm and not more than 350 nm.

24. (New) The reflective liquid crystal display device as set forth in claim 23, wherein the liquid crystal layer has a twist angle in a range of 45° to 100°.

25. (New) A reflective liquid crystal display device, comprising:

a first substrate having a light reflectibility;

a second substrate having a light transmissibility;

a liquid crystal layer sandwiched between the first substrate and the second substrate, the liquid crystal layer being composed of twist-aligned nematic liquid crystal having a positive dielectric anisotropy; and

at least one optical retardation compensator unit that selectively passes either right handed or left handed substantially circularly polarized light out of a plurality of wavelengths of natural light in the visible spectrum,

wherein, the at least one optical retardation compensator unit is disposed such that a major surface of the at least one optical retardation compensator unit is on a liquid crystal layer side, and the at least one optical retardation compensator unit has a linear polarizer plate provided adjacent to a side opposite to the major surface, the substantially circularly polarized light exiting the at least one optical retardation compensator unit through the major surface when natural light enters the optical retardation compensator unit, and

wherein, said incoming substantially circularly polarized light being linearly polarized at a surface of said first substrate in a plurality of directions respectively representative of said plurality of wave lengths of said natural light to thereby create a display.

26. (New) The reflective liquid crystal display device as set forth in any one of claims 1 through 3, wherein the substantially circularly polarized light includes elliptically polarized light.

27. (New) The reflective liquid crystal display device as set forth in claim 1, wherein the circular polarizing unit has a compensated retardation value to minimize influence from a residual phase difference of the liquid crystal layer.

28. (New) The reflective liquid crystal display device as set forth in claim 27, wherein the retardation value of the circular polarizing unit is compensated by a value within a range of 10 nm to 50 nm.

29. (New) The reflective liquid crystal display device as set forth in any one of claims 1 through 3, wherein

the circular polarizing unit performs as an optical retardation compensator that minimizes influence from a residual phase difference of the liquid crystal layer during application of a voltage to the liquid crystal layer.

30. (New) The reflective liquid crystal display device as set forth in claim 1, wherein

the circular polarizing unit includes,

a first optical retardation compensator plate,

a second optical retardation compensator plate having a retardation in a substrate normal direction set to not less than 200 nm and not more than 360 nm, and

a linear polarizer plate, and

wherein, $|2x\theta 2 - \theta 1|$ has a value not less than 35° and not more than 55°, where θ1 represents an angle formed by a slow axis of the first optical retardation compensator plate and either a transmission axis or an absorption axis of the linear polarizer plate, and θ2 represents an angle formed by a slow axis of the second optical retardation compensator plate and either the transmission axis or the absorption axis of the linear polarizer plate,

a direction of the slow axis of the first optical retardation compensator plate is parallel to an alignment direction of a liquid crystal in a middle of the liquid crystal later in a thickness direction, and

a retardation in the substrate normal direction of the first optical retardation compensator plate is set to a retardation that is smaller, by 10 nm to 50 nm, than a retardation for not less than 100 nm and not more than 180

nm that provides, across an entire visible range, a phase difference equivalent to a quarter wavelength.

31. (New) The reflective liquid crystal display device as set forth in claim 1, wherein

the circular polarizing unit includes,

a first optical retardation compensator plate,

a second optical retardation compensator plate having a retardation in a substrate normal direction set to not less than 200 nm and not more than 360 nm, and

a linear polarizer plate, and

wherein, $|2x\theta 2 - \theta 1|$ has a value not less than 35° and not more than 55°, where θ1 represents an angle formed by a slow axis of the first optical retardation compensator plate and either a transmission axis or an absorption axis of the linear polarizer plate, and θ2 represents an angle formed by a slow axis of the second optical retardation compensator plate and either the transmission axis or the absorption axis of the linear polarizer plate,

the slow axis of the first optical retardation compensator plate is orthogonal to an alignment direction of a liquid crystal in a middle of the liquid crystal later in a thickness direction, and

a retardation in the substrate normal direction of the first optical retardation compensator plate is set to a retardation that is greater, by 10 nm

to 50 nm, than a retardation for not less than 100 nm and not more than 180 nm that provides, across an entire visible range, a phase difference equivalent to a quarter wavelength.